

Renewable Energy Incentives for Electric Production

Report to the Commission on Electric Utility Restructuring and Coal and Energy Commission

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Prepared by the Department of Mines, Minerals and Energy

RENEWABLE ENERGY DEFINITION

"Renewable energy" means energy derived from sunlight, wind, falling water, sustainable biomass, energy from waste, wave motion, tides, and geothermal power and does not include energy derived from coal, oil, natural gas, or nuclear power. See § 56-576 of the Code of Virginia.

VIRGINIA FINANCIAL INCENTIVES

Net Metering: Net metering is a process where a user connects a small wind, solar electric, or hydroelectric system to the utility grid to offset some or all energy consumption. Renewable electrical energy generation in excess of on-site use flows back onto the utility grid and essentially runs the customer's meter backwards. This effectively gives the customer-generator full retail credit for excess renewably-generated electricity. The regulations for net metering customers and utilities were developed by the State Corporation Commission (SCC). SB 651 (2004) raised the net metering capacity for non-residential applications from 25 kilowatts up to 500 kilowatts. The SCC has opened a docket to begin the process of amending the net metering regulations to reflect this change. See § 56-594 of the Code of Virginia.

To date, the SCC has record of about 13 installations totaling approximately 30 kilowatts statewide. Anecdotal evidence suggests that there may be more installations that have not yet been reported to the SCC.

Solar Photovoltaic Manufacturing Grant Program (SMIG): The SMIG encourages the product development and manufacture of high-technology, solar energy products in Virginia. Any company that sells solar photovoltaic (solar electric) panels manufactured in Virginia is entitled to receive an annual manufacturing incentive grant for up to six years. For years one and two, the rate is 75 cents per watt; for years three and four, the rate is 50 cents per watt; and for years five and six, the rate is 25 cents per watt. See § 45.1-392 of the Code of Virginia.

The program attracted two solar panel manufacturers to open facilities in Virginia and continues to bring inquiries from other manufacturers. Currently, Atlantis Energy Systems is manufacturing photovoltaic products on Virginia's Eastern Shore. BP Solar (originally Solarex) closed their Toano, Virginia, operations.

Real or Personal Property Tax Exemption for Solar Energy Equipment: Virginia allows localities to treat certified solar energy equipment, facilities, or devices equipment as a separate class of real or personal property for local taxation. Localities may exempt, or partially exempt, this property from local taxation. See § 58.1-3661 of the Code of Virginia.

Localities exercising this option (as of 2003) include 7 cities (Alexandria, Charlottesville, Falls Church, Hampton, Lynchburg, Roanoke, and Winchester), 14 counties (Albemarle, Chesterfield, Dinwiddie, Fairfax, Hanover, Henrico, Isle of Wight, King and Queen, Loudoun, Prince William, Pulaski, Spotsylvania, Warren, and Wise), and no towns.

A table listing localities offering this and the related personal and real property tax exemptions is available at <http://www.virginia.edu/coopercenter/vastat/taxrates2003/03section6.pdf>.

Personal Property Tax Exemption for Wood or Alternate Energy Source or Cogeneration: Virginia allows localities to treat generating equipment installed after December 31, 1974, that is used to convert from oil or natural gas to wood, wood waste, or any other alternative energy source for manufacturing, or any cogeneration equipment, as a separate class of property for personal property taxation. Localities may exempt, or partially exempt, this property from local taxation. See § 58.1-3662 and 3506 of the Code of Virginia.

Localities exercising this option (as of 2003) include 1 city, (Winchester), 4 counties (Dinwiddie, Henrico, Pulaski, and Warren), and no towns.

Real or Personal Property Tax Exemption for Certified Pollution Control Equipment and Facilities: Virginia allows localities to treat certified pollution control equipment and facilities, including equipment used to grind, chip, or mulch trees, tree stumps, underbrush, and other vegetative cover for reuse as a fuel, as a separate class of property for real or personal property taxation. Localities may exempt, or partially exempt, this property from local taxation. See § 58.1-3660 of the Code of Virginia.

Localities exercising this option (as of 2003) include 15 cities (Bedford, Danville, Hopewell, Lynchburg, Manassas, Newport News, Norfolk, Petersburg, Portsmouth, Radford, Richmond, Roanoke, Salem, Waynesboro, and Winchester), 22 counties (Alleghany, Amherst, Bedford, Campbell, Chesterfield, Cumberland, Dinwiddie, Franklin, Frederick, Giles, Grayson, Halifax, Henrico, Isle of Wight, King William, Montgomery, Orange, Pulaski, Shenandoah, Spotsylvania, Warren, and York), and 4 towns (Front Royal, Tazewell, West Point, and Wytheville).

VHDA Low Interest Loans: Virginia offers a low-interest loan program for certain qualifying residences. This loan program was created under HUD Title 1 and is administered by the Virginia Housing Development Authority. It makes loans available for low and moderate-income homeowners for repairs that reduce energy consumption or dependence on conventional energy sources. All renewable energy technologies are eligible. Further information is available at <http://www.vhda.com>.

Waste Tire Recycling – Tire-Derived Fuel: The Department of Environmental Quality’s Waste Tire Program provides incentives for management of waste tires in Virginia, including use as a fuel. Further information is available at <http://www.deq.virginia.gov/wastetires/homepage.html>.

Over 170,000 tons of waste tires (31% of waste tires processed) have been turned into tire-derived fuel for electric generation and industrial power.

TVA - Green Power Switch® Generation Partners Program: The Tennessee Valley Authority (TVA) and participating TVA power distributors (Powell Valley Cooperative in Virginia) offer a dual metering option to residential and non-demand-metered small commercial consumers through the Green Power Switch® Generation Partners program. TVA will purchase the entire output of a qualifying system at \$0.15 per kWh. No Virginia TVA customers have yet taken advantage of this program. Further information is available at <http://www.tva.gov/greenpowerswitch/>.

Mainstay Energy Rewards Program - Green Tag Purchase Program: Mainstay Energy, a private company, will purchase from persons operating renewable energy systems the environmental attributes of the renewable production, which are then resold as green tags, also known as renewable energy credits. Payments depend on the type of renewable energy technology, the amount of electricity produced by the system, and the length of the contract period. Further information is available at <http://www.mainstayenergy.com/index.php>.

Federal Renewable Energy Grants: U.S. Department of Energy grants to advance use of alternative or renewable energy sources are periodically available in Virginia through the Department of Mines, Minerals and Energy. Grants from other federal agencies, such as the U.S. Department of Agriculture Rural Development, also are periodically available. For more information, contact the Department of Mines, Minerals and Energy, Division of Energy.

Recent examples of renewable energy project grants include:

- Department of Environmental Quality Distributed Energy Resources Project. Further information is available at <http://www.deq.virginia.gov/innovtech/der1.html>.
- Virginia Tech Solar Roof Membrane Development and Pilot Project, in partnership with Acrylife, Inc. of Wytheville, a membrane roofing manufacturer, and United Solar Ovonics of Michigan, a solar photovoltaic producer, to integrate United Solar’s flexible photovoltaic product with Acrylife’s roofing material to create a value-added roofing product.
- NASA-Wallops Island Wind Turbine Study. James Madison is implementing a study of the feasibility for installing one or more wind turbines at the Wallops Island facility.
- Department of Environmental Quality, jointly working with the Department of Game and Inland Fisheries, the Nature Conservancy, and the College of William and Mary, is studying seasonal migration patterns of migrant birds along the southern end of the Delmarva Peninsula where off-shore wind turbines have been proposed.
- DMME is working on a grant to use marginal or non-spec gas from wastewater treatment plant or poultry waste digesters, or non-spec coalbed methane to generate electricity.

OTHER VIRGINIA INCENTIVES

Landfill Gas – Public Utility Exceptions: There are three exceptions to the requirement that a company selling landfill gas or electricity generated from landfill gas must be a public utility. These include (i) a company may sell landfill gas to a public utility or if the utility in an area certificated for local gas service does not agree to purchase the gas, the company may sell directly to a state facility or other customers if the gas has been liquefied; (ii) an authority created under the Virginia Water and Waste Authorities Act may sell landfill gas to not more than one commercial or industrial customer from its facilities (with conditions on how the sale affects the certificated local gas utility); and (iii) a company may sell landfill gas or electricity generated only from landfill gas to not more than one commercial or industrial customer (with conditions on how the sale affects the certificated local gas utility). See § 56-265.1 of the Code of Virginia.

There are 10 landfill gas projects producing electricity in Virginia, with a total capacity of 43.8 MW. There are 8 landfill gas projects directly using the gas. Further information is available at <http://www.epa.gov/lmop/proj/>.

Solar Easements: Virginia law provides for use of solar easements. The easements must be created in writing and must be recorded as other easements. The easement agreement is to include the vertical and horizontal angles of the easement, the terms under which the easement may be terminated, and provisions for any compensation. See §§ 55-352 to 354 of the Code of Virginia.

Solar Access in Subdivision Ordinances: Localities may include in a subdivision ordinance, provisions for establishing and maintaining access to solar energy to encourage use of solar systems in new subdivisions. The solar access provisions are only applicable when requested by the subdivision developer. See § 15.2-2242.6 of the Code of Virginia.

Renewable Energy Projects – Energy Performance Contracting for State and Local Facilities: State agencies may include renewable energy systems, such as solar, biomass and wind, in Energy Performance-Based Contracts with third party energy performance contractors. See § 11-34.1 et seq. of the Code of Virginia.

Virginia Wind Energy Collaborative: The Virginia Wind Energy Collaborative (VWEC) is an organization of proponents of wind and other stakeholders that have established a forum to address wind energy issues. Further information is available at <http://web.jmu.edu/vwec/>.

Virginia Anemometer Loan Program: James Madison University (JMU) will assist landowners interested in small wind systems. Under the Virginia Anemometer Loan Program, JMU provides a wind anemometer for up to one year to measure actual wind levels at a proposed wind project site. Further information is available at <http://www.jmu.edu/sbalp>.

Virginia Small Wind Incentive Grant Program: James Madison University (JMU) offers partial funding for installation of small wind-powered systems. The program's goal is to work closely with interested landowners to install up to 10 small systems in areas that meet strict criteria for wind resource, matching funds, and landowner's willingness to educate other citizens about wind power. Grants up to \$10,000 or up to 30% of the system cost, whichever is less, are available. Further information is available at http://web.jmu.edu/vwec/vswip_program.htm.

Wind Resource Map: DMME has published a GIS-based wind resource map designed to assist wind power developers locate potential sites for wind turbines. The Environmental Working Group of the Virginia Wind Energy Collaborative (VWEC) is incorporating with this map a comprehensive listing of environmentally sensitive areas that will further enhance the map and help potential wind power developers make informed decisions about where to site wind turbines. Further information is available at <http://web.jmu.edu/vwec/windmap.htm>.

Arlington County-Green Power Purchase under the State Implementation Plan: Arlington County plans to buy green power as a voluntary measure in the draft State Implementation Plan for the Northern Virginia ozone non-attainment area, subject to EPA approval.

OTHER STATES' INCENTIVES

The table on the following pages show incentives offered in other states. They include:

- Public benefits funds
- Renewable portfolio standards
- Net metering
- Tax incentives
- Rebates
- Grants
- Loans
- Industry recruitment

A glossary of terms used in the table is included. Further information is available at <http://www.dsireusa.org/>.

FROM THE DATABASE OF STATE INCENTIVES FOR RENEWABLE ENERGY

The Database of State Incentives for Renewable Energy (DSIRE) is a comprehensive source of information on state, local, utility, and selected federal incentives that promote renewable energy. It is an ongoing project of the Interstate Renewable Energy Council (IREC), funded by the U.S. Department of Energy and managed by the North Carolina Solar Center.

State/ Territory	Public Benefit Fund	Renewable Portfolio Standard (RPS)	Net Metering	Personal Income Tax Incentives	Corporate Tax Incentives	Sales Tax Incentives	Property Tax Incentives	Rebate Program	Grant Program	Loan Programs	Industry Recruitment
Alabama				1-S					1-S		
Alaska										1-S	
Arizona		1-S	2-U	2-S		1-S		3-U			
Arkansas			1-S								
California	1-S	1-S	1-S	2-S	1-S		1-S	2-S, 6-U, 1-L			2-U
Colorado		1-L	4-U					1-L		1-U, 1-L	
Connecticut	1-S	1-S	1-S				1-S	1-S, 1-P	3-S	1-S	
Delaware	1-S		1-S					1-S			
Florida		1-U	2-U			1-S		2-U			
Georgia			1-S								
Hawaii		1-S	1-S	1-S	1-S			3-U		1-U, 2-L	1-S
Idaho			3-U	1-S					1-P	1-S	
Illinois	1-S	1-S	1-U				1-S	1-S, 1-U	1-S, 1-P		
Indiana			1-S				1-S		4-S		
Iowa		1-S	1-S			1-S	3-S		1-S	2-S	
Kansas							1-S		1-S		
Kentucky			1-S, 4-U								
Louisiana			1-S				1-S				
Maine	1-S	1-S	1-S					1-P	1-S		
Maryland		1-S	1-S	2-S	2-S	2-S	2-S		1-S	2-S	
Massachusetts	1-S	1-S	1-S	2-S	3-S	1-S	1-S	2-S, 1-P	1-S		
Michigan									5-S		3-S
Minnesota	1-S	2-S	1-S			2-S	1-S	1-S	1-U	2-S	
Mississippi										1-S	
Missouri					1-S					1-S	
Montana	1-S		1-S, 1-U	2-S	3-S		1-S	3-S	1-P, 1-S	1-S	
Nebraska										1-S	
Nevada		1-S	1-S			1-S	2-S	1-S, 2-U	1-S		
New Hamp.			1-S				1-S	1-P			

State/ Territory	Public Benefit Fund	Renewable Portfolio Standard (RPS)	Net Metering	Personal Income Tax Incentives	Corporate Tax Incentives	Sales Tax Incentives	Property Tax Incentives	Rebate Program	Grant Program	Loan Programs	Industry Recruitment
New Jersey	1-S	1-S	1-S			1-S		1-S	2-S	1-S	
New Mexico		1-S	1-S		1-S				1-S		
New York	1-S		1-S	1-S	1-S		1-S	3-S, 1-U	1-S	1-S	
N. Carolina				1-S	1-S		1-S			1-S	1-S
North Dakota			1-S	1-S	1-S	1-S	2-S				
Ohio	1-S		1-S, 1-U		1-S	1-S	1-S		1-S	1-S	2-S
Oklahoma			1-S		1-S					1-S	1-S
Oregon	1-S		1-S, 1-L	1-S	1-S		1-S	2-S, 6-U	1-P, 1-S	1-S, 4-U	1-S
Pennsylvania	1-S	1-S	1-S					1-L	1-S, 5-L	5-L	
Rhode Island	1-S		1-U	1-S		1-S	1-S	2-S, 1-P	2-S		
S. Carolina											
South Dakota							2-S				
Tennessee							1-S			1-S	
Texas		1-S, 1-L	1-S, 2-U		1-S		1-S	2-U			1-S, 1-L
Utah			1-S	2-S	1-S	1-S					
Vermont			1-S			1-S		1-S, 1-P			
Virginia			1-S				1-S		1-S		1-S
Washington			1-S, 1-U			1-S		5-U	1-P	2-U	1-S
West Virginia					1-S		1-S				
Wisconsin	1-S	1-S	1-S				1-S	1-S, 1-U	1-S	1-S	
Wyoming			1-S			1-S			1-S		
D.C.			1-S								

S = State/Territory L = Local U = Utility/Energy Service Co. P = Private

GLOSSARY OF TERMS:

Public Benefit Funds

Public Benefit Funds (PBF) are typically state-level programs developed through the electric utility restructuring process as a measure to assure continued support for renewable energy resources, energy efficiency initiatives, and low-income support programs. (These funds are also frequently referred to as a system benefits charge, or SBC). Such a fund is most commonly supported through a charge to all customers on electricity consumption, e.g., 0.2 cents/kWh. Examples of how the funds are used include: rebates on renewable energy systems; funding for renewable energy R&D; and development of renewable energy education programs.

Renewables Portfolio Standards/Set Asides

Renewables Portfolio Standards (RPS) require that a certain percentage of a utility's overall or new generating capacity or energy sales must be derived from renewable resources, i.e., 1% of electric sales must be from renewable energy in the year 200x. Portfolio Standards most commonly refer to electric sales measured in megawatt-hours (MWh), as opposed to electric capacity measured in megawatts(MW). The term "set asides" is frequently used to refer to programs where a utility is required to include a certain amount of renewables capacity in new installations.

Net Metering

For those consumers who have their own electricity generating units, net metering allows for the flow of electricity both to and from the customer through a single, bi-directional meter. With net metering, during times when the customer's generation exceeds his or her use, electricity from the customer to the utility offsets electricity consumed at another time. In effect, the customer is using the excess generation to offset electricity that would have been purchased at the retail rate.

Personal Income Tax Incentives

Personal income tax credits or deductions cover the expense of purchasing and installing renewable energy equipment. Some states offer personal income tax credits up to a certain percentage or predetermined dollar amount for the cost or installation of renewable energy equipment. Allowable credit may be limited to a certain number of years following the purchase or installation of renewable energy equipment. Eligible technologies may include solar and photovoltaic energy systems, geothermal energy, wind energy, biomass, hydroelectric, and alternative fuel technologies

Corporate Tax Incentives

Corporate tax incentives allow corporations to receive credits or deductions ranging from 10% to 35% against the cost of equipment or installation to promote renewable energy equipment. In some cases, the incentive decreases over time. Some states allow the tax credit only if a corporation has invested a certain dollar amount into a given renewable energy project. In most cases, there is no maximum limit imposed on the amount of the deductible or credit.

Sales Tax Incentives

Sales tax incentives typically provide an exemption from the state sales tax for the cost of renewable energy equipment

Property Tax Incentives

Property tax incentives typically follow one of three basic structures: exemptions, exclusions, and credits. The majority of the property tax provisions for renewable energy follow a simple model that provides the added value of the renewable device is not included in the valuation of the property for taxation purposes. That is, if a renewable energy heating system costs \$1,500 to install versus \$1000 for a conventional heating system, then the renewable energy system is assessed at \$1000.

Rebate Programs

Rebate programs are offered at the state, local, and utility levels to promote the installation of renewable energy equipment. The majority of the programs are available from state agencies and municipally-owned utilities and support solar water heating and/or photovoltaic systems. Eligible sectors usually include residents and businesses, although some programs are available to industry, institutions, and government agencies as well. Rebates typically range from \$150 to \$4000. In some cases, rebate programs are combined with low or no-interest loans.

Grant Programs

States offer a variety of grant programs to encourage the use and development of renewable energy technologies. Most programs offer support for a broad range of renewable energy technologies, while some states focus on promoting one particular type of renewable energy such as wind technology or alternative fuels.

Grants are available primarily to the commercial, industrial, utility, education, and government sectors. Some grant programs focus on research and development, while others are designed to help a project achieve commercialization. Programs vary in the amount offered--from \$500 to \$1,000,000--with some states not setting a limit.

Loan Programs

Loan programs offer financing for the purchase of renewable energy equipment. Low-interest or no-interest loans for energy efficiency are a very common strategy for demand-side management by utilities. State governments also offer loans to assist in the purchase of renewable energy equipment. A broad range of renewable energy technologies are eligible. In many states, loans are available to residential, commercial, industrial, transportation, public, and nonprofit sectors. Repayment schedules vary; while most are determined on an individual project basis, some offer a 7-10 year loan term.

Industrial Recruitment

Includes special efforts and programs designed to attract renewable energy equipment manufacturers to locate within a state or city. Renewable energy industrial recruitment usually consists of financial incentives like tax credits, grants, or a commitment to purchase a specific amount of the product for use by a government agency.

The recruitment incentives are designed to attract industries that will benefit the environment and create jobs. In most cases, the financial incentives are temporary measures that will help support the industries in their early years but include a sunset provision to encourage the industries to become self-sufficient within a number of years.